

PCT
Rec'd PCT/PTO 29 APR 2002

PATENT
Attorney Docket No. 213673

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

BEAUCAGE et al.

Application No. 09/937,292

Filing Date: September 24, 2001

Group Art Unit: Unassigned

Examiner: Unassigned

For: N-ACYLPHOSPHORAMIDITES AND
THEIR USE IN OLIGONUCLEOTIDE
SYNTHESIS

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, D.C. 20231

Pursuant to 37 CFR 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 and/or Substitute Form PTO-1449 ("Form 1449") are submitted for consideration by the Examiner in the examination of the above-identified patent application.

The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner place his or her initials in the appropriate area on the enclosed Form 1449, thereby indicating the Examiner's consideration of each of the references.

The submission of the references listed on the Form 1449 is for the purpose of providing a complete record and is not a concession that the references listed thereon are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so.

Further, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

CERTIFICATE OF MAILING

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231.

April 24, 2002

Peter Phillips

In re Appln. of BEAUCAGE et al.
Application No. 09/937,292

The Information Disclosure Statement is being filed:

- ☒ **within** any one of the following time periods: (a) within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d); (b) within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 of an international application; (c) before the mailing date of a first Office Action on the merits; or (d) before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.
- ☐ **after** (a), (b), (c) or (d) above, but before the mailing date of a final action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and includes *one* of:
- ☐ the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below).
- or*
- ☐ the fee of \$180 set forth in 37 CFR 1.17(p) (see "Fees" below).
- ☐ **after** the mailing date of a final action under 37 CFR 1.113 or a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and on or before payment of the issue fee, and includes the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).
- ☐ **after** the mailing date of a Notice of Allowance under 37 CFR 1.311, and on or before payment of the issue fee, and **within** thirty days of receiving each item of information contained in the Information Disclosure Statement, and includes the Statement under 37 CFR 1.704(d) (see "Statement under 37 CFR 1.704(d)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).
- NOTE: This is for original applications except applications for a design patent, filed on or after May 29, 2000, wherein a paper containing only an Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 is being filed.

Copies of the References

- ☒ Copies of the references listed on the enclosed Form 1449 are enclosed herewith. Attached to each reference not in the English language is a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3). An English-language equivalent/ patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3).
- ☐ A copy of the foreign search report is enclosed herewith.

- ☐ The references listed on the enclosed Form 1449 were previously identified in the parent application(s) of the present application, and copies of the references were furnished at that time. Accordingly, additional copies of the references are not submitted herewith, so as not to burden the file with duplicate copies of references. The Examiner is respectfully requested to carefully review the references in accordance with the requirements set out in the Manual of Patent Examining Procedure. In accordance with 37 CFR 1.98(d), the details of the parent application(s) relied upon for an earlier filing date under 35 USC 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		STATUS (CHECK ONE)		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1. 0 /				
2. 0 /				
3. 0 /				

Statement under 37 CFR 1.97(e)

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The **undersigned** hereby states that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

Statement under 37 CFR 1.704(d)

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

Fees

- ☒ No fee is owed by the applicant(s).
- ☐ The **IDS Fee of \$180** under 37 CFR 1.17(p) is enclosed herewith.

In re Appln. of BEAUCAGE et al.
Application No. 09/937,292

Method of Payment of Fees

- ☐ Attached is a check in the amount of \$.
☐ Charge Deposit Account No. 12-1216 in the amount of \$. (A duplicate copy of this communication is enclosed for that purpose.)

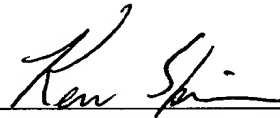
Authorization to Charge Additional Fees

- ☒ If any additional fees are owed in connection with this communication, please charge Deposit Account No. 12-1216. (A duplicate copy of this communication is enclosed for that purpose.)

Instructions as to Overpayment

- ☒ Credit Account No. 12-1216.
☐ Refund

Respectfully submitted,



Kenneth P. Spina, Registration No. 43,927
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Date: April 24, 2002

Please type a plus sign (+) inside this box

PTO/SB/08A/B (10-96)
Approved for use through 10/31/99. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitution for form 1449A/B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known Application Number: 09/937,292 Filing Date: September 24, 2001 First Named Inventor: BEAUCAGE, Serge L. Group Art Unit: Examiner Name: Attorney Docket Number: 213673	
Sheet	1	of	5		

U.S. PATENT DOCUMENTS								
Examiner Initials ¹	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Class	Subclass	Filing Date If Appropriate
		Patent Number	Kind Code					
	AA	3,534,017		Fujimoto et al.	10-13-1970			
	AB	4,415,732		Caruthers et al.	11-15-1983			
	AC	4,417,046		Hsiung et al.	11-22-1983			
	AD	4,458,066		Caruthers et al.	07-03-1984			
	AE	4,663,446		Wright	05-05-1987			
	AF	4,668,777		Caruthers et al.	05-26-1987			
	AG	4,725,677		Köster et al.	02-16-1988			
	AH	4,739,044		Stabinsky	04-19-1988			
	AI	4,757,141		Fung et al.	07-12-1988			
	AJ	4,808,708		Yoshida et al.	02-28-1989			
	AK	4,816,569		Miyoshi	03-28-1989			
	AL	4,816,570		Farquhar	03-28-1989			
	AM	4,845,205		Huynh Dinh et al.	07-04-1989			
	AN	4,849,513		Smith et al.	07-18-1989			
	AO	4,973,679		Caruthers et al.	11-27-1990			
	AP	4,980,460		Molko et al.	12-25-1990			
	AQ	5,026,838		Nojiri et al.	06-25-1991			
	AR	5,039,796		Engels et al.	08-13-1991			
	AS	5,071,974		Groody	12-10-1991			

- * A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).
- + An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of relevance under 37 CFR 1.98(a)(3).

Examiner Signature		Date Considered	
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¹EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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(Use as many sheets as necessary)

APR 29 2002

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Application Number	09/937,292
Filing Date	September 24, 2001
First Named Inventor	BEAUCAGE, Serge L.
Group Art Unit	
Examiner Name	
Attorney Docket Number	213763

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U.S. PATENT DOCUMENTS

Examiner Initials ¹	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Class	Subclass	Filing Date If Appropriate
		Patent Number	Kind Code					
	AT	5,091,519		Cruickshank	02-25-1992			
	AU	5,134,228		Takaku	07-28-1992			
	AV	Re.34,069		Köster et al.	09-15-1992			
	AW	5,166,330		Engels et al.	11-24-1992			
	AX	5,212,304		Fung et al.	05-18-1993			
	AY	5,214,135		Srivastava et al.	05-25-1993			
	AZ	5,252,760		Urdea et al.	10-12-1993			
	BA	5,258,538		Fung et al.	11-02-1993			
	BB	5,324,831		Marquez et al.	06-28-1994			
	BC	5,332,845		Urdea et al.	07-26-1994			
	BD	5,348,868		Reddy et al.	09-20-1994			
	BE	5,428,148		Reddy et al.	06-27-1995			
	BF	5,430,138		Urdea et al.	07-04-1995			
	BG	5,449,602		Royer et al.	09-12-1995			
	BH	5,506,351		McGee	04-09-1996			
	BI	5,510,476		Ravikumar et al.	04-23-1996			
	BJ	5,518,651		Reddy et al.	05-21-1996			
	BK	5,525,719		Srivastava et al.	06-11-1996			
	BL	5,556,961		Foote et al.	09-17-1996			
	BM	5,571,902		Ravikumar et al.	11-05-1996			

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Examiner Signature		Date Considered	
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		Patent Number	Kind Code					
	BN	5,574,146		Reddy et al.	11-12-1996			
	BO	5,614,622		Iyer et al.	03-25-1997			
	BP	5,616,700		Reddy et al.	04-01-1997			
	BQ	5,623,068		Reddy et al.	04-22-1997			
	BR	5,645,985		Froehler et al.	07-08-1997			
	BS	5,646,265		McGee	07-08-1997			
	BT	5,681,940		Wang et al.	10-28-1997			
	BU	5,700,919		Seliger et al.	12-23-1997			
	BV	5,703,223		Wickstrom et al.	12-30-1997			
	BW	5,705,621		Ravikumar	01-06-1998			
	BX	5,712,378		Wang	01-27-1998			
	BY	5,714,597		Ravikumar et al.	02-03-1998			
	BZ	5,731,429		Reddy et al.	03-24-1998			
	CA	5,959,099		Cheruvallath et al.	09-28-1999			

FOREIGN PATENT DOCUMENTS

Examiner Initials ¹	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Class	Subclass	Translation	
		Office	Number	Kind Code					Yes	No*
	CB	EP	0006220	A	Hoechst AG	01-09-1980			X ⁺	
	CC	EP	0090789	A	Monsanto Company	10-05-1983				
	CD	EP	0196101	A	Chiron Corporation	10-01-1986				

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of

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		Office	Number	Kind Code					Yes	No*
	CE	EP	0219342	A	Genentech, Inc.	04-22-1987				
	CF	EP	0241363	A	Commissariat a L'Energie Atomique (Paris)	10-14-1987			X ⁺	
	CG	EP	0323152	A	Applied Biosystems, Inc.	07-05-1989				
	CH	GB	2,153,356	A	California Inst. Technol.	08-21-1985				
	CI	WO	88/02004	A	Applied Biosystems, Inc.	03-24-1988				
	CJ	WO	93/12132	A	CNRS (Paris)	06-24-1993			X ⁺	

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials ¹	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation	
			Yes	No*
	CK	BEAUCAGE et al., <i>Tetrahedron</i> , 49 (28), 6123-6194 (1993).		
	CL	BROWN et al., <i>J. Chem. Soc., Chem. Commun. (Royal Society of Chemistry)</i> , 891-893 (1989).		
	CM	CAO et al., <i>Tetrahedron Lett.</i> , 24 (10), 1019-1020 (1983).		
	CN	GARDRAT et al., <i>J. Heterocycl. Chem.</i> , 27, 811-812 (March-April 1990).		
	CO	GRAJKOWSKI et al., <i>Org. Lett.</i> , 3 (9), 1287-1290 (December 2001).		
	CP	GUZAEV et al., <i>Tetrahedron Lett.</i> , 41, 5623-5626 (2000).		
	CQ	IYER et al., <i>J. Org. Chem.</i> , 60, 5388-5389 (1995).		
	CR	IYER et al., <i>Tetrahedron: Assymetry</i> , 6 (5), 1051-1054 (1995).		
	CS	KAWANOBE et al., <i>Chem. Lett. (Chemical Society of Japan)</i> , 825-828 (1982).		
	CT	MIZRAKH et al., <i>Zh. Obschei Khimii</i> , 45 (7), 1469-1473 (July 1975).		

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Sheet	5	of	5
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Translation

[illegible]

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